

St Bartholomew's PCC

ST BARTHOLOMEW'S CHURCH, PENN, WOLVERHAMPTON

RESULTS OF INVESTIGATIONS IN THE CHURCHYARD

By Angela Boyle

**Oxford Archaeology
Janus House
Osney Mead
Oxford OX2 0ES**

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SUMMARY

Archaeological investigation undertaken prior to the building of the Oak Room at St Bartholomew's Church in the summer of 1999 has revealed interesting insights into the life of the people of Penn in the 18th and 19th centuries. A total of 372 burials had to be moved and were recorded before being re-interred in the northern portion of the graveyard. From legible plates and stones it was possible to identify 49 named individuals, many of whom had been buried in underground vaults and shafts. Overall it can be said from the evidence recorded during the examination of the skeletons that during the 18th and 19th century the people of Penn were in good health and generally lived well into old age.

A variety of different burial types were revealed. The majority of individuals were buried in shrouds and laid in earth-cut graves, or within wooden coffins, often with brass or iron fittings. It is likely that the majority of the individuals buried in earth-cut graves are earlier: most were deeper and were cut by later burials, some of which could be dated to the 18th and 19th centuries. A number of the coffin fittings are as yet unparalleled elsewhere. Some individuals were buried within elaborate triple-shell lead and wooden coffins, often within brick-shaft graves or larger brick-built family vaults.

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1. INTRODUCTION

1.1 Project Background

- 1.1.1 An assemblage of 372 burials were excavated in advance of proposed development of a portion of the churchyard of St Bartholomew's, Penn, Wolverhampton. The work which comprised an archaeological watching brief by Oxford Archaeology (OA) who were in attendance on Necropolis, a firm of exhumation specialists, was carried out over an eight-week period in the summer of 1999. The proposal to provide the church with parish rooms and toilet facilities on the north side of the existing present building necessitated the excavation and clearance of *c.* 400 m². Enabling works that also had archaeological implications were the eventual provision of a graded path to the new building, and the erection of the permanent works. In addition, a small section of the churchyard wall had to be removed to provide access to the site.
- 1.1.2 The development proposal also included the provision for reinterment of burials in an archaeologically clear site, along the line of the northern footpath through the graveyard. Grave memorials were also re-erected in this area. This process necessitated the breaching of the curtilage wall.

1.2 Geology and Topography

- 1.2.1 St Bartholomew's Church is located in Upper Penn on the corner of Church Hill and Vicarage Road, to the south-west of Wolverhampton, West Midlands at NGR SO 8945 9529. The church is built on the lower southern summit of a hill and the development area slopes down at an incline of *c.* 30 degrees to the south.

1.3 Archaeological and Historical Background

- 1.3.1 Penn was established as a small community by the time of the Domesday record, but there is no mention of a church dating to this period. However, the remains of a Saxon preaching cross were recovered on the south side of the church in the late 19th century and this has been speculatively associated with the Countess Godiva of Mercia who held the estate here prior to the Norman Conquest. Whether the cross acted as the main focal point of religious gatherings or existed alongside a church on the site is unknown. It has been conjectured that the first, possibly wooden, church on the site was established *c.* 1200 AD by Sir Hugh de Bushbury. Although further developments and extensions of the church building through the ensuing centuries increased the size of this first church threefold it is thought to have developed southwards of its original foundation. A blocked northern window may be of Norman date (Pevsner 1974, 323). Two bays of the north arcade are 13th century (octagonal piers) and the bays further west are perpendicular. The tower is 15th century in date and was encased in brick in 1765 (Pevsner 1974, 323). In 1799 the original chancel was pulled down and a new one built, leaving only two Early English bays of the nave arcade.
- 1.3.2 The area to the north of the church, which included the site of the proposed development, is known to have been used as a cemetery throughout the 18th, 19th and 20th centuries and may also have been part of the medieval cemetery. The gravestones mainly dated from the 19th century, although there were a number of 18th-century examples.
- 1.3.3 A record of the churchyard memorials was begun in 1983 by members of the parish and this comprised transcripts of the wording on the headstones and various

quantitative details and observations on the stones themselves although this does not include a photographic record (*Graveyard Schedule. St Bartholomew's Church, Penn, nr Wolverhampton*).

- 1.3.4 There is documentary evidence of 2526 burials within the churchyard as a whole for the period 1800-1900. Fifty four of these burials were known to be within the development area. In other words their presence was commemorated on headstones, although not necessarily by name plates on coffins. Conversely others who were not commemorated on headstones could be identified by the inscriptions on name plates.

1.4 The Evaluation

- 1.4.1 Oxford Archaeology undertook a small evaluation within the footprint of the proposed new building in August and September 1994. This comprised four 2 m² trenches (see Figure 1), all of which were excavated and recorded to the level of natural stratigraphy. This was observed at 172.48 m OD on the north side and between 171.94 -173.17 m OD on the south side. Between 1-2 m of burial deposits were excavated in each trench. No evidence of earlier church foundations was recorded although a heavily truncated pit containing bell-founding material was identified. In addition, 14 medieval pottery sherds were redeposited in post-medieval grave fills. More than 20 burials dating to the 19th century were located in the four trenches, along with several earlier, undated burials. Three of the burials were associated with illegible iron name plates. Copper alloy fittings were also present. Brick-built vaults, also dating from the 19th century were located in the south-eastern and north-western areas of the development area (vaults 60 and 195, see Figure 1).
- 1.4.2 Based on the results of the evaluation it was estimated that the proposed development area was likely to contain anything from 250-500 burials and an unknown number of burial vaults.
- 1.4.3 Initially it was hoped that further work would comprise detailed excavation of the cemetery combined with similarly detailed osteological analysis. With this in mind the Oxford Archaeological Unit submitted a Written Scheme of Investigation in 1998. By this stage the Parochial Church Council had retained an Archaeological Consultant, so a very detailed Written Scheme of Investigation (WSI) was written in response to a similarly detailed Archaeological Brief. The original WSI (which ran to 8500 words) had outlined a system of osteological recording which comprised both high- and low-resolution analysis of skeletal remains. After much negotiation between all interested parties it became apparent that, primarily for financial reasons, the PCC was unable to proceed in this manner.
- 1.4.4 Ultimately the work consisted of an archaeological watching brief combined with low-resolution osteological recording. This took place entirely on site over an eight week period alongside Necropolis, a company of exhumation contractors. Two archaeologists were present, one of whom was responsible for osteological recording, while the other dealt with the recording of stratigraphy, coffins and associated fittings etc. This was supplemented by short periods spent on site by the Project Manager and regular meetings with the Archaeological Consultant.
- 1.4.5 The Written Scheme of Investigation comprises Appendix 1 below.

2. ORIGINAL PRIORITIES, AIMS AND METHODOLOGY

2.1 Priorities and Aims

2.1.1 Some general aims were outlined as part of the original Written Scheme of Investigation and these remained valid at the commencement of work. However, our main concern was whether or not we would recover sufficient data to achieve them, even in part. General archaeological aims were defined as follows:

- To collect data which will contribute to the understanding of the history and development of funeral trends.
- To collect data which will contribute to the understanding of the demography of the small percentage of the population of the graveyard which is being disturbed.
- To establish the stratigraphic sequence of burials.
- To record vault structures and their contents in detail.
- To identify any existing evidence for an earlier church structure.
- To provide dating evidence for the surviving burials.
- To recover evidence of burial rites and undertaking practices.
- To determine the character and date range of the burials

2.1.2 Although no evidence for an earlier church structure was revealed all the remaining aims have been achieved to some degree.

The History and Development of Funeral Trends

2.1.3 The earliest burials appear to have been plain earth-cut examples, perhaps laid only in shrouds or in plain wooden coffins without fittings which subsequently decayed. These appear to have been superseded by wooden coffins with fittings, generally of iron, and less commonly brass. Less common alternatives were single shell lead coffins or the much more elaborate triple-shell wood-lead-wood coffins, which were usually placed in brick-built shafts or family vaults.

The Demography of the Sample

2.1.4 It has been possible to assign age and sex (adults only) estimates for the majority of the sample (see section 3.9 below).

The Stratigraphic Sequence of Burials

2.1.5 The 3-D location of all burials and their relationship to one another has been recorded.

Vault Structures and Their Contents

2.1.6 All vaults and brick-built shaft graves along with their contents have been recorded in detail (see section 3.4 below).

Dating Evidence for the Surviving Burials

2.1.7 Where possible burials have been dated on the basis of stratigraphic relationships, coffin fitting type and/or inscriptions on name plates or grave stones.

Burial Rites and Undertaking Practices.

2.1.8 With the exception of burial 84 the entire assemblage had been orientated west-east and laid in a supine extended position.

Character and date range of the burials

2.1.9 A full description of every burial has been provided. Dating evidence has been recovered in a number of cases.

2.2 Fieldwork Methodology

2.2.1 The job dictated that OA was in attendance on Necropolis rather than vice versa. However, detailed discussion of both contractors' requirements before the commencement of the project ensured that, for the most part, work progressed smoothly with only minimal delays.

2.2.2 A site grid was set up by the exhumation contractors although it was agreed that OA would do the same (we felt that a slightly higher level of accuracy was desirable than was required by Necropolis). The exhumation contractors were responsible for the removal of memorials within the clearance area. A photographic and written record had already been made by members of the parish. The contractors intended to deal with these as work progressed. The memorials were reinstated along the length of a pathway through the northern portion of the churchyard.

2.2.3 The primary objective (of both contractors) was to clear the area of all archaeological remains down to natural and reinstate the archaeologically sterile soil. A possible bell-founding pit and a small quantity of medieval pottery was recovered during evaluation so it was considered possible that structural remains relating to an early phase of church construction would be encountered. In this event work would stop and the approach be reconsidered. In the event, the only non-burial features were a handful of possible pits or postholes which did not produce any finds.

2.2.4 Excavation followed the standard procedure employed by Necropolis as follows: soil was cleared in a grid pattern from east to west in a series of two m² sections by a small digger machine operated by their employees under archaeological supervision. This was carried out in a series of strips starting at the east end and proceeding to the west. The spoil from successive pits was used to fill the previous one. The method employed is illustrated in Plate 1. At this point clearance is approximately 50% complete. Machine clearance continued until articulated skeletons/structures were encountered. The area was then made safe in order that the location and manner of the burial could be recorded. Every skeleton was 3-D located and recorded schematically on an overall site plan (see Figure 1). The skeleton was then removed and osteologically recorded. After recording the skeletons were bagged for reburial with context numbers and identification tags where this information was known. Associated coffin fittings were also reburied with the relevant individuals.

2.2.5 It is important to emphasise that our approach was based on the premise that the unit for the purposes of recording would be the skeleton/coffin/associated fittings. Grave cuts, given that they were generally invisible, were to be discarded as an interpretative unit. The former method is very labour intensive. Each skeleton was therefore assigned a single context number which also encompassed the coffin and associated fittings. Separate recording sheets with the same number were filled in for skeleton, coffin/and or fittings. Approximately 6-10 skeletons were removed per day and the osteologist present could easily carry out low-resolution recording of these within that time scale (or a combination of low- and high- where desirable).



Plate 1: view from top of church tower

- 2.2.6 At least one brick-built burial vault was visible within the development area and a further two had been identified within evaluation trenches. The vaults were dismantled by Necropolis after their contents were recorded archaeologically. Where lead coffins survived intact these were archaeologically recorded prior to lifting and reburied by Necropolis. Only external features of sealed, or substantially sealed, lead coffins were recorded archaeologically.

2.3 Artefactual Methodology

- 2.3.1 Wooden and lead coffins and any associated fittings, including nails, were recorded on the coffin recording sheet. All surviving coffin fittings were recorded by reference to the published corpus of material from Christ Church, Spitalfields (Reeve and Adams 1998). Where individual types could not be paralleled they were sketched or photographed as appropriate. All identifiable types and their date ranges appear in Table 3.

2.4 Osteological Methodology

Low-Resolution Recording

- 2.4.1 The entire skeletal assemblage was subjected to low-resolution recording. Low-resolution skeletal recording included a skeletal and dental inventory, age and sex assessments, gross pathological observations, and basic metrical recording for use in the determination of stature and sex. The aim of the low-resolution analysis was to provide enough information to reconstruct the demography of the excavated sample.

High-Resolution Recording

- 2.4.2 Where time allowed named individuals (particularly related individuals) and those of intrinsic osteological interest were recorded in more detail. The latter can be defined as those with unusual pathology, evidence of surgical or dental intervention and exceptionally good preservation. High-resolution recording (where time

allowed) entailed the addition of detailed descriptions of pathology and differential diagnosis, additional metrical recording, and a study of non-metric traits.

- 2.4.3 Similar methodologies were applied to the skeletal assemblages from St Nicholas, Sevenoaks (Boyle and Keevill 1998) and the Quaker cemetery at London Road, Kingston-upon-Thames (Bashford and Pollard 1998; Start and Kirk 1998). At the former all burials within the church (approximately 500, not including any burials within the churchyard) were excavated while at the latter site a total of 497 burials were documented and 360 were excavated (72.4%). This is in marked contrast to the situation at St Bartholomew's where only 372 out of at least 2526 documented burials were excavated (14.73%).
- 2.4.4 Ideally all named individuals would be recorded in detail (ie. subjected to high-resolution recording) and retained for future study. Named individuals are osteologically valuable. The fact that they are of known age and sex allows for the testing of the existing methods used by osteologists and the creation of new ones. However, the method outlined here provides broad demographic information such as age at death and sex of the individual as well as data on height and dental health. It gives us sufficient information to produce a general impression of some of the people of Penn in the 18th and 19th centuries and allows for comparison with a number of other post-medieval assemblages.
- 2.4.5 The evaluation indicated that it was not necessary to wash the skeletal material and dry brushing was employed instead.
- 2.4.6 The quantification and analysis of the data collected at St Bartholomew's has been compared to three relevant examples (St Nicholas, Sevenoaks, St Luke's, Islington; Christ Church, Spitalfields) in order to provide contemporaneous context.

2.5 Reburial

- 2.5.1 Provision had been made for reburial of all exhumed individuals in an area to the north of the development area. Digging took place at intervals under archaeological supervision and the area proved to be devoid of archaeology. A religious ceremony was conducted by the Revd Williams on each occasion.

3. FACTUAL DATA AND QUANTIFICATION

3.1 The Stratigraphic Record

- 3.1.1 The full range of possible remains was encountered. There were seven large brick built vaults, four brick-built single shaft vaults, 14 lead coffins, 131 wooden ones and the remaining 212 were apparently buried in earth-cut graves (see Plate 2), presumably originally in shrouds. A number of these may well be late medieval in date although no dating evidence was recovered and it is therefore impossible to be certain. The total number of burials recovered was at the upper end of the range predicted on the basis of the evaluation results (250-500).



Plate 2: skeleton 193

3.2 Burial Practice and Graveyard Management

- 3.2.1 All headstones and ledgerstones within the development area were recorded prior to the commencement of the exhumation. It is noteworthy that the majority of the individuals who appear in these inscriptions could not have been identified purely by recourse to the burial evidence. In other words name plates identifying them were not found. It is fair to say that in this sense they are archaeologically invisible.

3.3 Named Individuals

- 3.3.1 It was possible to identify a total of 49 individuals through the inscriptions on their associated name plates. The earliest was William Pershouse who died in 1789. In some cases sections of the inscriptions were illegible. A total of 18 individuals were not examined osteologically either because coffins were sealed or the remains were fleshed.

Table 1 Individuals of known age and/or sex

Inhumation No	Osteological ageing	Osteological sex	Name	Age at death	Year of death
7	50+	M	Edward Biddle	64	1818
8	30+	M	Thomas Biddle	29	1811
9	30-50	F	? ?dle		1823
26	60+	F	Ann George	76	
27	35-45	M	Samuel George	80	
36	39-44	M	John Eld	61	1849
37	60+	F	Sarah Eld	75	1836
41	60+	M	Edward Adkins		
47	17-25	M	?Adkins		
70	39-44	F	Clara Reynolds	41	1894
89	20-25	F	Mary Medd?		
90			William Pershouse	38	1789
91			Elizabeth Pershouse	84	1827
92	30-50	F			
93	50+	F	Ellen Pershouse Hidon	70	1829
98	25-35	F	Mary W??be?	57	
104	40+	F	Mary Peacock		1824
106	60+	M	Rev. John Bindney Marsh	86	1890
123				59	
132	50+	F		71	
135			Betsy Harding		1923
136			Sarah Harding		1913
139	50+	F	Elizabeth Whitehead	68	
152	39-44	M	Edward Ledbetter		1836
154	40+	M?	William		1806
156	50+	M	Frederick Walton	74	1861
157	50+	F	Mary Isabella Walton		1853
158	25+	F	Emily Walton		1853
159			Frederick Pape Walton	0.5	1835
160			Margaret Millington	78	1884
177			Charles Henry Tandy	52	1959
182	35-39	M	Edward	38	1834
195	50+	M	William Henry Philips	68	1899
200	35-45	F?	Jane L??ll		
204	50+	F	Sarah Willington	76	1849
205			Edward Willington	77	1840
214			Ann Thacker	61	1892
215			Jane Emily Philips	63	1897
219	50+	M			1848
238	40+	F		75	
245	45+	M		50	
265			Elizabeth Mills	86	1837
266			Ann Th???		1806
267			William Thacker	87	1854
268			Robert Thacker	67	1867
269			Ellen Pershouse	59	1863
270			Thomas Moss Philips	66	1877
271			Colonel William F Thacker	45	1883
302	50+	M	Thomas ?av?	71	1855
308	50+	F	Mary Crutchley	89	1894
315	39-44	M	James Crutchley	39	1856
327	50++	M	Robert Devey	76	1874
329	39-44	M	William Taylor		1813
332	25-45	F	Mary Taylor	44	1828
333	25-35	M	John De?	36	1846
368	50+	M		78	

- 3.3.2 It is noteworthy that in the case of older individuals the osteological ages arrived at were incorrect and individuals were assigned much younger ages (regularly around 20 years younger). In contrast assessment of sex was correct in every case (adults only; no attempt is made to sex subadults as the relevant morphological characteristics are not sufficiently developed).

*Problems with the accuracy of archaeological ageing techniques.
Recent analyses of individuals of known age and sex have demonstrated that the techniques traditionally employed to age adult skeletons are very inaccurate and that the older an individual actually is the more inaccurate the estimate of age. for this reason the excavation and analysis of skeletons of known age and sex is extremely important.*

3.4 Burial Vaults and Brick-lined Shaft Graves

- 3.4.1 A number of family vaults and shaft graves were clearly identifiable. These are summarised in Table 2.

Table 2 Family vaults and shaft graves

Structure No.	Family Name	Foundation	Closure
3	Biddle	1811	1823
33	Eld		
60	Bindney Marsh?		
61	Pershhouse		
209	Willington		
211	Chinner (husband and wife)		
213	Thacker		
404	Griffith?		
405	George (husband and wife)	1852	1855
406	Millington		
407	Walton		
408	Dudley		

Vault 3 (see plate 3)

- 3.4.2 Vault 3 was a brick built square structure located in the south-eastern corner of the site. The whole structure was two-bricks thick, stretcher bond with occasional header courses to hold it together, a brick floor and a brick roof which arched west-east. It measured 2.20 x 2.20 x 1.50 m. The entrance was located on the south side and had been blocked by a slab with the inscription 'Biddle 1811'. The internal walls were whitewashed and mortar candle-holders were set into each of the four corners of the vault. Burials 4 and 6 had been placed on bricks to elevate them from the floor. Burials 7, 8 and 9 were certainly identified as members of the Biddle family. Thomas Biddle was buried in 1811, presumably when the entrance slab was placed. Therefore the vault must have been reopened in 1818 and 1823 for the insertion of burials 7 and 9.

Types of brick courses.

Stretcher bond: this term is used to refer to bricks which are laid lengthways end to end. The opposite term is header bond which refers to bricks which are laid in the opposite manner.



Plate 3: working shot, vicinity of vault 3

- Burial 7 - Edward Biddle died 1818 Aged 64?
- Burial 8 - Thomas Biddle Died June 2? 1811 aged 29
- Burial 9 - ?dle ?6y 19th ? 1823 ?ea?

Vault 33 (see plates 4 and 5)

- 3.4.3 Vault 33 was a brick-built structure located at the northern edge of the development area. The whole structure was two-bricks thick, stretcher bond with occasional header courses to hold it together, a brick floor and a brick roof which arched west-east. The internal walls were whitewashed and mortar candle-holders were set into the north and south walls. It measured 2.70 x 2.70 x 2.10 m. The entrance was located on the south side. It was blocked by a single rough skin of brickwork and covered by a stone slab with the inscription 'Eld'. The structure contained burials

34, 35, 36, 37, 38 and 39. Coffins 36 and 37 were triple shelled wood and lead examples with outer fabric coverings. Both lead coffins had an incised cross hatched design. The later lead burials rested on bricks over the earlier wooden ones.



Plate 4: Vault 33, north facing



Plate 5: Burial 37. Type 4 grips and grip-plates (1743-1847), type 3 name plate (1729-1827)

- Burial 36 - John Eld died August 30th 1849 aged 61 years
- Burial 37 - Sarah Eld died July 4th 1836 aged 75

Vault 60

- 3.4.4 Vault 60 was originally identified within evaluation trench 4. It was located in the south-eastern corner of the site and was truncated by the existing retaining wall constructed in the 1950s. The whole structure was two-bricks thick, stretcher bond with occasional header courses to hold it together, a brick floor and a brick roof which arched north-south. The vault had been backfilled, presumably during the construction of the retaining wall. Burial 106 was located on the floor at the western end: only the lower half of the body survived and was identified as the Reverend John Bindney Marsh, who died in 1890 aged 86. A second set of disturbed coffin fittings were also recovered, presumably representing a burial removed in the 1950s.

Vault 61

- 3.4.5 Vault 61 was located immediately west of vault 33. It was a two-celled structure two bricks thick throughout with an east-west arched roof and white washed internal walls. Each of the `cells` measured 2.70 x 1.90 x 1.70 m. The eastern cell had been completely filled with rubble and there were no burials. The western cell contained burial 90, 91, 92 and 93 (see plates 6 and 7). A stone slab with the inscription `Pershouse 1789` blocked the entrance. The inscription presumably commemorated William Pershouse who was buried in 1789. All the coffins were triple shelled wood and lead.

Types of coffin burial

Triple-shell

This was a style of coffin burial in the 18th and 19th centuries. It was a more costly type of burial because it consists of three coffins packed together like a 'Russian doll'. First the body is placed in a plain wooden coffin. This is then sealed in a lead coffin, which is sometimes inscribed with the name of the dead person. Finally a third wooden coffin is built around the lead coffin and dressed with dark woven or velvet fabric and decorated with shiny metal fittings.

- Burial 90 - Will^m Pershouse Esq died 30th July 1789 Aged 38
- Burial 91 - Mrs Elizabeth Pershouse died 27th July 1827 aged 84 years
- Burial 93 - Ellen Pershouse H?idon died 11th March 1829 aged 70 years

Vault 209

- 3.4.6 Vault 209 was located west of vault 61, was two bricks thick throughout, with a west-east arched roof and mortar candle holders. It contained burials 204, 205, 206, 207 and 208. Burials 204 and 205 rested on two wooden supports above the other burials. The entrance was located on the south side, measuring 2.15 x 2.10 x 1.60 m. It was blocked by a stone slab without an inscription. Lead coffin 207 had an incised cross-hatch design,

- Burial 204 - Sarah Willington died April 10th 1849 aged 76 years
- Burial 205 - Edward Willington Esq died Sept 6th 1840 aged 77 years

Structure 211 (see plate 6)

- 3.4.7 Structure 211, capped by ledger stone 9.8 and 9.8a. It was a rectangular structure measuring 2.30 x 1.60 m with an arch in each of the four walls. It was single skin brick-built comprising 11 courses and was of rather rough construction. The inscription on ledger stone 9.8 read as follows: `Sacred to the memory of Thomas Chinner late of Kingswinford who departed this life September the 19th 1829 aged 65 yrs. Also Ann, his wife, who departed this life July 28th 1830 aged 76 yrs.' It is noteworthy that the age at death of Thomas Chinner is recorded as 68 years in the

burial register. The inscription on ledger stone 9.8a was illegible. It is thought most likely that burial 210 was associated with this structure. All the others are earlier in date. Burial 210 was an adult female aged upwards of 50 years, so could conceivably have been Ann Chinner.

Plate 6: structure 11, north-east facing



Vault 213 (see plates 7-9)

3.4.8 Vault 213 was located immediately west of vault 209. It measured 4.10 x 2.20 m and had two levels. The south facing entrance had an elaborate doorway arch. The lower level contained burials 265-271. A floor of large slate slabs was laid above these burials supported on iron bars, some set into the north and south walls with others resting on bricks. Coffins 265-271 were all triple-shell lead and wood coffins with elaborate brass fittings. Traces of the outer fabric covering survived on coffin 267. The remains of a wreath lay on top of coffin 266. All seven burials could be identified by the inscriptions on the name plates as follows:

- Burial 265 - Elizabeth Mills, died January 26th 1837 aged 86 years
- Burial 266 - Ann ? wife of Wm Th? was born Dec 1773 married June 12th 1793 and died December 21st 1806
- Burial 267 - William Thacker died June 25th 1854 aged 87 years
- Burial 268 - Robert Thacker died April 27th aged 67 years
- Burial 269 - Ellen Pershouse Philips, wife of Thomas Moss Philips of Earlswood, Penn, died 6th June aged 59 years
- Burial 270 - Thomas Moss? Philips born April 26th 1803 died February 24th 1877
- Burial 271 - Colonel William F. Thacker died 11th? December 1883 or 5 aged 45 years

Plate 7: Vault 213, north-east facing



- 3.4.9 Burials 214 and 215 were laid on this slate floor. Burial 214 was Ann Thacker, born at Long Salop, 25th January 1831, died at Ostend September 10th 1892. Burial 215 was Jane Emily Philips who died April 6th 1897 aged 63 years. Both coffins were elaborate triple shell lead and wood coffins. The remains of five funeral wreaths were associated with burial 215. Floral tributes were recovered from a number of 18th- and 19th-century burials at St Nicholas, Sevenoaks (Boyle and Keevill 1998).

Plate 8: Burials 214 and 215, within vault 213



Plate 9: Vault 213, showing slate floor (partially removed)



Vault 409

- 3.4.10 Vault 409 was a three celled structure. The northern cell contained two burials (2 and 337) while the others contained one each (burials 1 and 5).
- 3.4.11 Four brick built shaft graves were excavated (405-408). Only 406 contained a single burial in a lead coffin. Structure 405 contained two burials, 407 contained four and 408 contained three burials (see Figure 1).

3.5 Coffins and Associated Fittings

- 3.5.1 In general where post-medieval coffins are recovered with fittings these generally comprise some, or all, of the following: 1 name plate, 1-2 lid motifs, 8 grip-plates and grips and a number of escutcheons.
- 3.5.2 A total of 162 coffins were represented by fittings, a further two by nails and wood. The quality of the surviving 118 wooden coffins was variable ranging from traces only to complete examples. Eighteen coffins were made of lead. All were of triple shell - wood/lead/wood construction and traces of an outer textile covering survived on a number of them. No less than 121 coffins with fittings could be dated by reference to the Christ Church, Spitalfields corpus and the date ranges appear in Table 2. Burials 28 and 29 were both in lead coffins which had been placed one on top of the other in an earth cut grave.



Plate 10: burial 92. Type 6 lid motif (1779-1847)

- 3.5.3 A number of types could not be identified by reference to the Christ Church, Spitalfields corpus. Sketches of these have been examined by Melanie Richmond who is currently undertaking a PhD on post-medieval coffin furniture and the following paragraphs are based on her comments.
- 3.5.4 The `bar` grips from coffins 15, 195, 217 and 325 are broadly comparable with Christ Church, Spitalfields type 1 (1747-1847). However, as coffins 195 and 271 have dates of 1899 and 1883 respectively there is clear evidence for extending this date range. Also, these grips are stylistically more `modern` and are most common today.
- 3.5.5 The assemblage from St Bartholomew's includes 6 new `shield` type name plates (coffins 36, 160, 308 and 327). This is interesting as Christ Church, Spitalfields only had one shield type and St Luke's, Islington (Boyle and Witkin in preparation) only produced one further type. This may be indicative of local stylistic preferences or a local manufacturing bias: presumably most of the coffin furniture was manufactured in Birmingham.
- 3.5.6 A total of 10 coffins have associated fittings which can be paralleled at Christ Church but they have a more recent date of deposition (coffins 36, 37, 139, 156, 158, 204, 219, 267, 302, 327).

Table 3 Summary of coffin furniture and associated date ranges based on typology from Christ Church, Spitalfields

Burial No.	Name plate	Grip	Grip-plate	Lid motif	Inscription
2		Type 1 (1747-1847) Type 2a (1763-1837)			
4	Type 49 (undated)				
5		Type 2a (1763-1837)			
6	Type 2 (1839-1845)	Type 2a (1763-1837)			
7	Type 1 (1729-1807)	Type 4 (1743-1847)			Edward Biddle died 1818; aged 64
8	Type 1 (1729-1807)	Type 1 (1747-1847) Type 4 (1743-1847)			Thomas Biddle died 1811; aged 29
9	Type 1 (1729-1807)	Type 1 (1747-1847) Type 4 (1743-1847)			?ddle 1823
10		Type 1 (1747-1847)			
12		Type 4 (1743-1847)			
13		Type 7 (1821-1849)			
14		Type 4 (1743-1847)			
15		Type 1 (1747-1847)			
17		Type 4 (1743-1847)			
18		Type 10 (1837) Type 22 (undated)			
19		Type 1 (1747-1847) Type 4 (1743-1847)			
20	Type 1				18??

	(1729-1807)				
21		Type 1 (1747-1847)			
22		Type 4 (1743-1847)			
31		Type 4 (1743-1847)			
34		Type 2a (1763-1837)			
36		Type 1 (1747-1847)			John Eld died August 30th 1849 aged 61 y
37		Type 3 (1729-1827) Type 4 (1743-1847)			Sarah Eld died January 4th 1836 aged 75 (see plate 5)
38		Type 2a (1763-1837)	Type 24 (1796-1806)		
39		Type 2a (1763-1837)			
40	Type 1 (1729-1807)				
41	Type 1 (1729-1807)	Type 2a (1763-1837)			Edward Adkins died July 10 183? Aged 8?y
42		Type 2a (1763-1837)			
47		Type 2a (1763-1837)			
52		Type 2a (1763-1837) tin Type 3 (1729-1827)			
58	Type 27 (1788-1839) tin	Type 4 (1743-1847)			illegible
59		Type 2a (1763-1837)			
63		Type 7 (1821-1849)			
64		Type 7 (1821-1849)			
72		Type 2a (1763-1837)			
75		same as 27			
78		Type 6 (1839-1849)	similar to Spitalfields 25, also example from St Luke's (1089)		(see Plate 12)
79	Type 49 (undated)	same as burial 4			
82	Type 1 (1729-1807) tin	Type 4 (1743-1847)			
85		Type 2a (1763-1837)			
89	Type 1 (1729-1807) tin	Type 3 (1729-1827)			Mary Medd? Died Feb 5 18?? Aged ? Y
91		Type 4 (1743-1847)			Mrs Eliz Pershouse died 27th July 1827 aged 84 y
92		Type 4 (1743-1847)	Type 3 (1768-1842)	Type 6 (1779-1847)	(see Plate 6)
93				Type 2 (1795-1847)	Ellen Pershouse Hidon died 11 March 1829 aged 70 y

					(see Plate 7)
98	Type 27 (1788-1839)	Type 4 (1743-1847)	Type 3 (1768-1842)		Mary W??be? Died Nov 14 18?9 aged 57 y
99		Type 2a (1763-1837)	Type 3 (1768-1842)		
103	Type 1 (1729-1807)				
104	Type 1 (1729-1807)	Type 2a (1763-1837)			Mary Peacock died ? 1824 Aged 6?
109		Type 2b (1763-1837)			
126	Type 1 (1729-1807)				
132	Type 1 (1729-1807)				
138	Type 7 (1821-1849)				
139	Type 1 (1729-1807)				Eliz Whitehead died Jan 1st 1841 aged 68 y
143	Type 1 (1729-1807)	Type 4 (1743-1847)			
147	Type 7 (1821-1849)				
151		Type 2a (1763-1837)			
152	Type 1 (1729-1807)	Type 2a (1763-1837)			Edward Ledbetter died aug 10th aged 43 y
153		Type 4 (1743-1847)			
154	Type 1 (1729-1807)	Type 4 (1743-1847)			
156		Type 1 (1747-1847)	same as 36		Frederick Walton died 18 Mar 1861 aged 74 y
158		Type 1 (1747-1847)			Emily Walton died 1853
160		St Luke's (1089)			
165	Type 1 (1729-1807)				
166		Type 7 (1821-1849)			
180	Type 1 (1729-1807)	Type 4 (1743-1847)			
182	Type 1 (1729-1807)	Type 4 (1743-1847)			Edward ? Died July ? 1834 aged 38 y
183		Type 2a (1763-1837)			
185		Type 2 1763-1837			
187	Type 1 (1729-1807)	Type 2 1763-1837	Type 3 (1768-1842)		
189		Type 2a (1763-1837)			

193		Type 2b (1763-1837)			
194		Type 2a (1763-1837)			
195	1899	bar grip			William Henry Philips died July 15th 1899 aged 68 years
200	Type 1 (1729-1807)	Type 4 (1743-1847)			
203		Type 2a (1763-1837)			
204	?Type 1 (1729-1807)				Sarah Willington died April 10 1849 aged 76 y
205	Type 1 (1729-1807)	Type 4 (1743-1847)	Type 3 (1768-1842)		Edward Willington Esq died Sept 6th aged 77 y
210		Type 4 (1743-1847)			
212	Type 1 (1729-1807)	Type 4 (1743-1847)			
218		?Type 2a (1763-1837)			
219	Type 1 (1729-1807)	Type 4 (1743-1847)			? Died Jan ? 1848 aged 6?
220		Type 2b (1763-1837)			
231		Type 4 (1743-1847)			
232	Type 1 (1729-1807)				
234	Type 1 (1729-1807)	Type 4 (1743-1847)			
235		Type 2a (1763-1837)			
236	Type 1 (1729-1807)	Type 4 (1743-1847)			
238	Type 1 (1729-1807)	Type 2a (1763-1837)			? Died Jan ? Aged 75 y
240		Type 2a (1763-1837)			
242	Type 1 (1729-1807)	Type 4 (1743-1847)	Type 3 (1768-1842)		
245	Type 1 (1729-1807)	Type 4 (1743-1847)			James T? died ? Aged 50 y
259		Type 2 1763-1837			
260		Type 2a (1763-1837)			
262		Type 2a (1763-1837)			
265		Type 4 (1743-1847)	Type 3 (1768-1842)		Elizabeth Mills died Jan 26 1837 aged 86 y
267		Type 4 (1743-1847)			William Thacker died June 25 1854 aged 87 y

268		St Luke's (1089)			Robert Thacker died April 27th 1867 aged 67 years
270		St Luke's (1089)			Thomas Moss? Philips born April 26th 1803, died February 24th 1877
271	1883	bar grip			Colonel William Thacker died 11th December 1883 or 5 aged 45 years
274		Type 2a (1763-1837)			
277		Type 2a (1763-1837)			
279	Type 1 (1729-1807)	Type 4 (1743-1847)			
285		Type 2b (1763-1837)			
298		Type 7 (1821-1849)			
299		Type 2b (1763-1837)			
300		Type 4 (1743-1847)			
302	Type 1 (1729-1807)	Type 4 (1743-1847)			Thomas ?av? Died July 21 1855 aged 71 y
305		Type 2a (1763-1837)			
312		?Type 2a (1763-1837)			
315	Type 1 (1729-1807)	Type 7 (1821-1849)			
325		bar grip			
327		Type 1 (1747-1847)			Robert Devey died Aug 28th 1874 aged 76 y
329	Type 1 (1729-1807)	Type 2 1763-1837			W? Taylor died Feb 28th 1813 aged ?
332	Type 1 (1729-1807)	Type 4 (1743-1847)			Mary Taylor died April 2 1828 aged 44 y
333	Type 1 (1729-1807)	Type 4 (1743-1847)			John De? Feb 22 1846 aged 36 y
334		Type 4 (1743-1847)			
338		Type 7 (1821-1849)			
340		Type 2a (1763-1837)			
341	Type 1 (1729-1807)	Type 4 (1743-1847)			
343		Type 1 (1747-1847)			
354	Type 1 (1729-1807)	Type 4 (1743-1847)			
359		Type 4 (1743-1847)	Type 3 (1768-1842)		
366		Type 2a (1763-1837)			
368	Type 1	Type 4 (1743-1847)			? Died 23 July

	(1729-1807)				aged 78 y
400		Type 1 (1747-1847)			

Coffin Preservation

3.5.7 It is assumed where coffin evidence is completely lacking that all traces of the wood had decayed or that these individuals were merely buried in shrouds.



Plate 11: Burial 93. Type 2 lid motif (1779-1847)

Table 4 Burials with coffins, coffin fittings and associated structures.

Inhumation	Coffin	Fittings	Age	Sex	Date range	Name	Real age	Real date	
1	Wood	Y	50+	M					
2		Y	50+	F	1747-1847	Griffith?			Within brick-lined grave 404
4	Wood	Y	50+	F					Within vault 3
5		Y	30+	F	1763-1837				Within brick-lined grave 404
6		Y	20-30	F	1763-1837				Within vault 3
7	Wood	Y	50+	M	1743-1847	Edward Biddle	64	1818	Within vault 3
8	Wood	Y	30+	M	1743-1847	Thomas Biddle	29	1811	Within vault 3
9	Wood	Y	30-50	F	1747-1847	? Biddle		1823	Within vault 3

10		Y	0-0.5	SA	1747-1847				
12		Y	40+	M	1743-1847				
13		Y	40-50	F	1821-1849				
14		Y	39-44	M	1743-1847				
15		Y	25-35	F	1747-1847				
17	Wood	Y	20-30	F	1743-1847				
18		Y	33-45	F	1837				
19		Y	SA	SA	1743-1847				
20		Y	25-35	F	1747-1847				
21		Y	45+	M	1747-1847				
22		Y	60+	F	1743-1847				
26	Wood	Y	60+	F		Ann George	76	1855	Within brick shaft 405
27	Wood	Y	35-45	M		Samuel George	80	1852	Within brick shaft 405
28	Lead	Y	50+	F					
29	Lead	Y	50+	M					
30	Wood	Y	25-35	M					
31		Y	40-50	M	1743-1847				
32		Y	17-25	F					
34		Y	20-30	F					Within vault 33
35	Wood	Y	25-35	M					Within vault 33
36	Lead	Y	39-44	M	1747-1847	John Eld	61	1849	Within vault 33
37	Lead	Y	60+	F	1729-1847	Sarah Eld	75	1836	Within vault 33
38	Wood	Y	13-14	SA	1763-1837				Within vault 33
39	Wood	Y	Ageing	M	1763-1837				Within vault 33
40		Y	50+	M	1747-1847				
41	Wood	Y	60+	M	1747-1847	Edward Adkins			
42		Y	40+	F	1763-1837				
43		Y	50+	M					
46		Y	60+	M	1821-1849				
47		Y	17-25	M	1763-1837	?Adkins			
52		Y	13-14	SA	1729-1837				
58		Y	50+	F?	1743-1847				
59		Y	14-17	SA	1763-1837				
63	Wood	Y	30+	F	1821-1849				
64	Wood	Y	50+	F	1821-1849				
67		Y	50+	F					
68		Y	20+	F					
69		Y	13-15	SA					
70	Wood	Y	39-44	F		Clara Reynolds	41	1894**	
72	Wood	Y	35-39	F	1763-1837				

75	Wood	Y	50+	M					
77		Y	40+	F					
78		Y	60+	M	1839-1849				
79		Y	50+	M					
82		Y	25-35	F	1729-1847				
85		Y	25-35	F	1763-1837				
9	Wood	Y	20-25	F	1729-1827	Mary Medd?			
90	Lead	Y				William Pershouse	39	1789	Within vault 61
91	Lead	Y			1743-1847	Elizabeth Pershouse	84	1827	Within vault 61
92	Lead	Y	30-50	F	1743-1847				Within vault 61
93	Lead	Y	50+	F	1795-1847	Ellen Pershouse Hidon	70	1829	Within vault 61
94	Wood	Y	40+	F					
98	Wood	Y	25-35	F	1743-1847	Mary W??be?	57		
99	Wood		adult	M	1763-1842				
102	Wood	Y	60+	M					
103	Wood	Y	adult	M	1729-1807				
104	Wood	Y	40+	F	1729-1837	Mary Peacock		1824	
106	Wood	Y	60+	M		Rev. John Bindney Marsh	86	1890	Within vault 60
107	Wood	Y	60+	M					
109	Wood	Y	ageing	F	1763-1837				
122		Y	ageing	M					
130	Wood	Y	25-35	M					
131	Wood	nails	6	SA					
132	Wood	nails	50+	F	1729-1807		71		
138		Y	50+	M	1821-1849				
139	Wood	Y	50+	F	1729-1807	Elizabeth Whitehead****	68	1841	
141		Y	39-44	F					
143	Wood	Y	35-39	F	1729-1847				
145	Wood	Y	25-40	M?					
146	Wood	Y	45-50	M					
147	Wood	Y	50+	M	1821-1849				
151	Wood	Y	25-35	M?	1763-1837				
152	Wood	Y	39-44	M	1729-1837	Edward Ledbetter		1836	
153	Wood	Y	40-50	M	1743-1847	Thomas Dudley	54	1806*	Within brick-lined grave 408
154	Wood	Y	40+	M?	1743-1847	William Dudley	48	1806*	Within brick-lined grave 408
155	Wood	Y	45+	M		William Dudley	66	1792*	Within brick-lined grave 408
156	Wood	Y	50+	M	1747-1847	Frederick Walton***	74	1861	Within brick-lined grave 407
157	Wood	Y	50+	F		Mary Isabella Walton		1853	Within brick-lined grave 407
158	Wood	Y	25+	F	1747-1847	Emily Walton		1853	Within brick-lined grave 407

159		Y				Frederick Walton	Pape	6 m	1835	Within brick-lined grave 407,
160	Lead	Y			1839-1849	Margaret Millington		78	1884	Within brick-lined grave 406
165	Wood	Y	45+	M	1729-1807					
166	Wood	Y	45-50	M	1821-1849					
167	Wood	Y	39-44	M						
169	Wood	Y	45+	F						
180	Wood	Y	20-25	F	1729-1847					
182	Wood	Y	35-39	M	1729-1847	Edward		38	1834	
183	Wood	Y	45-50	F	1763-1837					
184	Wood	Y	adult	M?						
185	Wood	Y	40+	F	1763-1837					
187	Wood	Y	11.5-12.5	SA	1729-1842					
189	Wood	Y	25-35	F	1763-1837					
193	Wood	Y	17-25	M	1763-1837					
194	Wood	Y	adult	M	1763-1837					
195	Wood	Y	50+	M		William Philips	Henry	68	1899	
200	Wood	Y	35-45	F?	1729-1847	Jane L???				
204	Lead	Y	50+	F		Sarah Willington		76	1849	Within vault 209
205	Lead	Y			1768-1842	Edward Willington		77	1840	Within vault 209
206	Lead	Y								Within vault 209
207	Lead									Within vault 209
208	Wood									Within vault 209
210	Wood	Y	50+	F	1743-1847	Ann Chinner		76	1830*	Within brick grave 211
212	Wood	Y	50+	M	1729-1847					
214	Lead	Y				Ann Thacker		61	1892	Within brick grave 213
215	Lead	Y (floral wreaths surviving)				Jane Emily Philips		63	1897	
218	Wood	Y	50+	F	1763-1837					
219	Wood	Y	50+	M	1729-1849				1848	
220	Wood	Y	20-25	M	1763-1837					
223	Wood	Y	50+	M						
231	Wood	Y	45+	M	1743-1847					
232	Wood	Y	35+	M	1729-1807					
234	Wood	Y	50+	F	1729-1847					
235	Wood	Y	adult	F?	1763-1837					
236	Wood	Y	40+	M	1729-1847					
238	Wood	Y	40+	F	1729-			75		

					1837				
240	Wood	Y	16-20	F?	1763-1837				
242	Wood	Y	50+	F	1729-1847				
245	Wood	Y	45+	M	1729-1847		50		
255	Wood	Y	50+	F					
256	Wood	Y	45+	M					
257	Wood	Y	50+	F					
258	Wood	Y	40+	M?					
259	Wood	Y	adult	M	1763-1837				
260	Wood	Y	35+	M	1763-1837				
262	Wood	Y	40+	F	1763-1837				
265	Lead	Y			1768-1842	Elizabeth Mills	86	1837	Within vault 213
266	Lead	Y			1768-1842	Ann, wife of Wm Th?	33	1806	Within vault 213
267	Lead	y			1743-1847	William Thacker	87	1854	Within vault 213
268	Lead	Y			1839-1849	Robert Thacker	67	1867	Within vault 213
269	Lead	Y				Ellen Pershouse	59	1863	Within vault 213
270	Lead	Y			1839-1849	Thomas Moss? Phillips	73	1877	Within vault 213
271	Lead	Y				William F. Thacker	45	1883?	Within vault 213
274	Wood	Y	40+	M?	1763-1837				
277	Wood	Y	45+	M	1763-1837				
279	Wood	Y	50+	M	1729-1847				
285	Wood	Y	25-30	F	1763-1837				
298	Wood	Y	50+	F	1821-1849				
300	Wood	Y	50+	M	1743-1847				
301	Wood	Y	6-7	SA					
302	Wood	Y	50+	M	1729-1847	Thomas ?av?	71	1855	
305	Wood	Y	50+	F	1763-1837				
307	Wood	Y	18-20	F					
308	Wood	Y	50+	F		Mary Crutchley	89	1894	
312	Wood	Y	adult	?					
315	Wood	Y	39-44	M	1729-1849	James Crutchley	39	1856	
325	Wood	Y	adult	F					
327	Wood	Y	50++	M	1747-1847	Robert Devey	76	1874	
329	Wood	Y	39-44	M	1729-1837	William Taylor		1813	
332	Wood	Y	25-45	F	1729-1847	Mary Taylor	44	1828	
333	Wood	Y	25-35	M	1729-1847	John De?	36	1846	
334	Wood	Y	39-44	M	1743-1847				
335	Wood	Y	35+	F					
337	Wood								Within brick-lined grave 404
338	Wood	Y	35+	F	1821-1849				
339	Wood	Y	40+	F					
340	Wood	Y	35+	F	1763-				

					1837				
341	Wood	Y	39-44	F	1729-1847				
343	Wood	Y	45-50	F	1747-1847				
344	Wood	Y	40+	F					
346	Wood	Y	40+	F					
350	Wood	Y	40+	F					
351	Wood	Y	25-35	?					
354	Wood	Y	18-25	F	1729-1847				
355	Wood	Y	16-20	M?					
357	Wood	Y	40+	F					
359	Wood	Y	45+	M	1743-1847				
366	Wood	Y	45+	F	1763-1837				
368	Wood	Y	50+	M	1729-1847		78		
369		Y	45+	M					
370		Y	40+	F					
371		Y	0-0.5	?					
372		Y	20-25	F					
374		Y	15-17	?					
375		Y	adult	M					
376	wood	Y	6-8	SA					

*Identification based on inscriptions from ledgerstones and headstones rather than name plates directly associated with the coffins.

**Tier pedestal - former cross broken off commemorating Elizabeth Reynolds, died June 30th 1833, 1858, aged 25 years; also Clara Reynolds, died December 13th 1897 (1894 in burial register).

***headstone - Frederic Pape, son of Frederick and Isabella Walton, died July 4 1835, aged 6 months; Emily Walton died April 20th 1853, aged 25 years

**** headstone - Elizabeth Whitehead, January 1st 1841 aged 68; Robert Whitehead March 4th 1844, aged 74 years



Plate 12: Burial 78. Type 6 grip and grip-plate (1839-1849)

3.6 Place of Death

- 3.6.1 The body of Ann Thacker who died in Ostend was brought back to Penn for burial in brick structure 213. This fact was recorded on her coffin plate.

3.7 Family Relationships

- 3.7.1 Inscriptions referring to women tended to conform to the common practice of describing her relationship to her nearest male relative, for example, Ann, wife of William Thacker, dates of birth, marriage and death are given, along with comments such as daughter of, mother of etc.
- 3.7.2 Mary and Emily Walton both exhibited congenital absence of the second incisors (see below for further discussion of this trait).

3.8 Orientation and Body Position

- 3.8.1 All the burials were orientated broadly west-east and lying in a supine extended position with a single notable exception. Burial 84 was an adult female aged between 30 and 40 years who was also supine extended but buried in an east-west position. There was no evidence for a coffin. The partial skeleton of a neonate (newborn infant), 398 was identified in the pelvic area of the adult female.

3.9 The Burial Population

- 3.9.1 All osteological recording was undertaken without any knowledge of biographical details in order to evaluate the effectiveness of the current ageing methods. Low resolution analysis has recently been carried out in a small number of archaeological contexts but usually in combination with high resolution recording (for example St Nicholas, Sevenoaks and the Quaker burial ground at London Road, Kingston-upon-Thames) and not generally in attendance on exhumation contractors.

Preservation and Completeness

- 3.9.2 Preservation and completeness was extremely variable. There was at least one 20th - century individual in a very plain wooden coffin, completely skeletal, wearing a plastic (?bakelite) head band. Some burials within lead coffins were skeletal while others were fleshed.

Age and Sex

- 3.9.3 A total of 372 individuals were excavated comprising 100 males, 25 probable males, 102 females, 21 probable females, 45 adults of uncertain sex, 58 subadults (below the age of 16) and 21 for whom no osteological data was available. The latter were recovered in sealed lead coffins which were immediately reburied.
- 3.9.4 It is clear that the vast majority of the assemblage comprises adult individuals (314, 84.4%). This is comparable with St Luke's, Islington where 86.4 of the assemblage were adult individuals.
- 3.9.5 Age at death ranged from newborn to 89 years. More than half of the adult assemblage is aged upwards of 40 years (162 individuals, 51.6%). It is noteworthy that where age at death is known, osteological ageing is generally wrong; there was a marked tendency to underage. There is no doubt that inaccuracy increased with the age of the individual. Dental wear was the least accurate method.
- 3.9.6 The majority of subadults died aged upwards of 5 years (39 individuals, 71%). This is marked contrast to the urban assemblage from St Luke's, Islington where 74.4% of subadult died aged 5 years or less (Boyle and Witkin in preparation).

Table 5 Age breakdown for subadults and comparison with St Luke's

	St Bartholomew's	St Luke's
Age range	No of individuals	No of individuals
foetus (before birth)	1	3
neonate (birth-11 m)	3	35
infant 1 (1-5 y)	13	52
infant 2 (6-11 y)	17	19
juvenile (12-17 y)	22	12
total	58	121

- 3.9.7 A number of metric measurements are regularly taken to assist in the assessment of sex. One of these is the diameter of the head of the femur or thigh bone. The range for 91 males was 41.2-58 mm and for 102 females, 33.6-48.6 mm. It is clear then that there is quite a bit of overlap between the sexes.

Stature

- 3.9.8 Stature was calculated for 90 males, 93 females and 2 adults of uncertain sex. Comparisons have been made with post-medieval assemblages from St Nicholas, Sevenoaks (Boyle and Keevill 1998, 93), Christ Church, Spitalfields (Molleson and Cox 1993, 24) and the Quaker burial ground at London Road, Kingston-upon-Thames (Start and Kirk 1998,170). The average height of individuals at St Bartholomew's (males 5'9" and females 5'3") was most similar to those from St Nicholas, Sevenoaks (males 5'8" and females 5'4"). This is almost certainly not coincidental as both groups of individuals lived in a predominantly rural, and therefore healthier, environment. In addition all the burials excavated at St Nicholas had been buried within the church so it can probably be assumed that they represented a wealthier section of the community than those buried outside in the churchyard.

Table 5 Stature estimates for St Bartholomew's and comparable assemblages

	?	M	F
<i>St Bartholomew's</i>			
Average cms	158.4	175.2	160.7
Range cms	149.7-166.8	145.6-185	142.8-183.9
Average inches	5'2"	5'9"	5'3"
Range inches	4'10"-5'6"	4'9"-6'1"	4'8"-6'
<i>London Road</i>			
Average cms	166.2	168.7	160.3
Range cms	152-186	154.5-190	139.5-174.5

Average inches	5'5"	5'6"	5'4"
Range inches	5'-6'1"	5'1"-6'2"	4'6"-5'6"
<i>St Nicholas</i>			
Average cms		173	161
Range cms		162-183	149-172
Average inches		5'8"	5'3"-5'8"
Range inches		5'4"-6'	
<i>Christ Church*</i>			
Average cms		167.91-170.27	154.04-158.52
Range cms			
Average inches		5'6"	5'1"
Range inches			

* Christ Church average was variable depending on the formula used.

Dental Health

- 3.9.9 Standard dental recording was undertaken for all burials so the level of ante-mortem loss and the prevalence of dental disease are a true reflection of the dental health of the excavated sample. Ante-mortem tooth loss was comparable with St Nicholas, though less so with London Road and more than twice the rate at Christ Church. Caries rate however was more comparable with London Road and considerably less than St Nicholas and Christ Church. Very few abscesses were recorded at St Bartholomew's, London Road and St Nicholas (no data for Christ Church).

Table 6 Prevalence of dental pathology at St Bartholomew's and comparable assemblages

	Antemortem loss		Caries		Abscess	
	No. affected	No. observed	No. affected	No. observed	No. affected	No. observed
St Bartholomew's	1671	4349	166	2047	3	4334
	38.40%		8.10%		0.07%	
London Road	1436	4149	210	3858	3	
	34.6%		5.40%		0.07%	
St Nicholas	529	1394	113	803	5	
	37.95%		14.08%		0.41	
Christ Church	341	2140	385	2140		
	15.94%		17.99%			

Skeletal Pathology (the evidence for disease)

- 3.9.10 The value of the data relating to disease is questionable as it was only recorded incidentally and presence/absence of bones was not systematically recorded. There are clearly instances where skeletal pathology would have been misdiagnosed or in fact missed altogether. However, some interesting factors have emerged.

Table 7 Crude pathological totals from St Bartholomew's and comparable assemblages

	St Bartholomew's	St Luke's	London Road
Pathological Classification	No of individuals	No of individuals	No. of individuals
Joint	66	458	46
Trauma	15	53	13
Infective		95	12
Congenital		4	10
Metabolic	2	68	8

- 3.9.11 Surgical intervention was indicated by three skulls whose upper portions or caps had been removed (38, 180 and 301) and an amputation (315). It is likely that these skulls were treated in this manner as part of post-mortem procedures. Burial 38 was a child aged 13-14 years who was located in the Eld family vault. Burial 315 who was an adult male had his left leg amputated at the midshaft of the femur (thigh bone). Bony growth over the cut end of the bone was partial at the time of death so

we can argue that the portion of leg was removed not too long before death. He was identified as James Crutchley who died age 39.

- 3.9.12 The skeleton of Edward Ledbetter, burial 152, who died in 1836 had bowed tibiae, possibly indicative of rickets or vitamin D deficiency suffered in childhood.
- 3.9.13 All other skeletal pathology was unremarkable, comprising degenerative joint disease, sacro-iliac ankylosis and 12 fractures, the lower leg (tibia and/or fibula) being affected in five cases.

Sacro-iliac ankylosis. This term is used to refer to the bony fusion of the sacrum (the bone at the base of the spine) to the ilium which is part of the pelvis. This fusion generally occurs as a result of increasing age and would have the effect of reducing mobility.

- 3.9.14 In general the population appears to have been a very healthy one with many individuals living well into old age. Even those individuals who did live into old age showed few signs of degeneration.

Table 8 All pathological changes

Inhumation No	Age	Sex	Pathology
2	50+	F	Polishing (eburnation) of joint surface at knee, caused by arthritis
4	50+	F	Polishing (eburnation) of joint surface at knee, caused by arthritis
12	40+	M	arthritic spine, broken collar bone
21	45+	M	broken thigh bone
27	35-45	M	fusion of pelvis and sacrum
29	50+	M	arthritic spine
31	40-50	M	broken lower leg (fibula and tibia), broken lower arm (left radius)
36	39-44	M	fusion of 2nd, 3rd and 4th cervical vertebrae, arthritis
37	60+	F	fusion of pelvis and sacrum, left side only, arthritic spine
38	13-14	SA	craniotomy
39	ageing	M	arthritic spine
40	50+	M	compression fracture of 4th and 5th lumbar vertebrae (at base of spine)
41	60+	M	arthritic spine, fracture of upper arm (humeral head), associated arthritis
43	50+	M	arthritic spine
46	60+	M	arthritic spine, left and right hip joints also affected
55	35+	M	arthritic spine
64	50+	F	arthritic spine
67	50+	F	arthritic spine
72	35-39	F	broken right collar bone
75	50+	M	arthritic spine
76	45+	M	arthritic spine
78	60+	M	fusion of pelvis and sacrum, arthritic spine
79	50+	M	arthritic spine
92	30-50	F	arthritic spine
93	50+	F	advanced arthritis
94	40+	F	arthritic spine

102	60+	M	arthritic spine
103	adult	M	fusion of pelvis and sacrum, degenerative joint disease
104	40+	F	4 fused thoracic vertebrae
107	60+	M	fusion of pelvis and sacrum, degenerative joint disease
109	ageing	F	arthritic spine
115	adult	M	arthritic spine
126	20-25	M	broken lower leg (tibia and fibula), osteophytes
132	50+	F	arthritic spine
133	40+	M	arthritic spine
138	50+	M	arthritic spine, arthritic hips
139	50+	F	arthritic spine
143	35-39	F	broken upper arm (humerus), arthritic spine
145	25-40	M?	arthritic spine
147	50+	M	broken collar bone
152	39-44	M	broken collar bone, possible rickets (bowed tibiae), arthritic spine
153	40-50	M	arthritic spine
156	50+	M	marked arthritic spine
165	45+	M	broken thigh bone
166	45-50	M	arthritic spine, hip degeneration
180	20-25	F	craniotomy
182	35-39	M	marked muscle insertions (deltoid)
183	45-50	F	very arthritic hips, arthritic spine
195	50+	M	arthritic shoulder joint, arthritic spine
204	50+	F	arthritic hip
210	50+	F	arthritic spine
212	50+	M	arthritic spine
219	50+	M	arthritic spine, arthritic hip and shoulder joints
223	50+	M	arthritic spine, arthritic hips
234	50+	F	arthritic spine
242	50+	F	fusion of pelvis and sacrum, arthritic spine
245	45+	M	arthritic spine
255	50+	F	arthritic spine
256	45+	M	arthritic spine
257	50+	F	arthritic spine
260	35+	M	arthritic spine
264	40+	M?	arthritic spine
279	50+	M	broken lower leg (fibula)
282	adult	F?	arthritic hip
298	50+	F	arthritic spine
300	50+	M	fusion of pelvis and sacrum
301	6-7	SA	craniotomy
302	50+	M	arthritic spine, arthritic hips, partial fusion of pelvis and sacrum
308	50+	F	arthritic spine, slightly arthritic hips
315	39-44	M	left femur amputated at mid shaft
327	50++	M	arthritic spine, fusion of pelvis and sacrum, arthritic hips
333	25-35	M	Diffuse Idiopathic Skeletal Hyperostosis (DISH)?
336	39-44	M	slight arthritic spine
341	39-44	F	slight arthritic spine
343	45-50	F	arthritic knees
358	45+	?	fusion of pelvis and sacrum
363	adult	?	broken lower leg (tibia and fibula)
365	40+	M	arthritic spine

368	50+	M	broken lower arm (radius), arthritic spine
369	45+	M	osteoarthritis
370	40+	F	broken lower leg (fibula)

Non-metric Traits

- 3.9.15 Non-metric or discontinuous traits are developmental anomalies which are exhibited by some skeletons. There is a prevailing assumption that some at least of these traits are inherited. The value of the data on non-metric traits as far as this particular assemblage is concerned however, is questionable as their occurrence was only recorded incidentally and presence/absence of bones was not systematically recorded.
- 3.9.16 It would have been a useful exercise to record the incidence of non-metric traits for the named sample to determine whether or not related individuals shared any of them. However, this was not possible because the methodology demanded that burials were reentered in the churchyard as quickly as possible.
- 3.9.17 Mary and Emily Walton both exhibited congenital absence of the second incisors. Absence of these particular teeth rarely reaches frequencies of more than a few percent and it has long been asserted that this agenesis is inherited (Hillson 1996, 113).

Table 9 Non-metric traits and congenital 3rd molar absence

Inhumation No	Age	Sex	Non-metrics	3rd molar absence	Name	Real age
7	50+	M	spina bifida occulta		Edward Biddle	64
8	30+	M			Thomas Biddle	29
9	30-50	F			? ?dle	
29	50+	M	sternal foramen	no		
30	25-35	M		no		
31	40-50	M	right vastus notch	no		
32	17-25	F		yes lower		
35	25-35	M		yes lower		
36	39-44	M	L5 sacralised	yes lower	John Eld	61
37	60+	F	rotation	no	Sarah Eld	75
39	ageing	M	partial spina bifida occulta			
54	4-6	SA				
55	35+	M	sternal foramen	no		
58	50+	F?	sternal foramen			
81	15-16	SA		yes lower		
85	25-35	F		yes lower		
89	20-25	F	sternal foramen, spondylolysis of L5	no	Mary Medd?	
98	25-35	F		yes all	Mary W??be?	57
102	60+	M		yes all		
107	60+	M	supra-scapular foramen, left and right			
118	33-45	F?	wormian bones			
121	20-25	M	incisor crowding, accessory facets on occipital	no		
157	50+	F	3rd molar impaction, maxillary 2nd incisors absent	no	Mary Isabella Walton	
158	25+	F	2nd incisor absence, 1 maxillary and 1 mandibular	no	Emily Walton	

4. DISCUSSION AND CONCLUSIONS

4.1 The Health and Wealth of the Population

- 4.1.1 In general terms the sample population appears to have been a healthy one which lived well into old age. Skeletal pathology was occasional, and this included degenerative joint disease and trauma. It is noteworthy that many of the coffin fittings were made of brass rather than iron, perhaps suggesting a degree of wealth. The statistician William Farr talking about England noted in 1840 that life expectancies were up to 20 years higher in rural districts compared with the worst urban areas (Woods and Woodward 1984).
- 4.1.2 Although it is traditionally assumed that burials within churchyards are generally less wealthy than those buried inside the church, at St Bartholomew's a number of wealthy burials were revealed, for example all the elaborate triple-shell wood-lead-wood coffins within vault 213, possibly because there was insufficient room remaining within the church itself.
- 4.1.3 There is evidence during the 18th century for increasing affluence, for at least some individuals, in the form of both personal memorials and alterations to the church building. The memorials are Peter Payton 1771, T Bradney 1782, W Pershouse 1789 and John Marsh 1795. There is also a fine memorial to Anne Bache Sedgwick who died in 1719 aged only a few months. Not everyone was similarly wealthy. There is an entry in the register on 25th March 1750 when a foundling was baptised Mary Penn. The vicar commented: 'This child was found tied up in a cloth and hung to the ring of the south door of Penn Church about 8 o'clock one night by Willm. Baker as he was coming out of the church after ringing of the Curfew Bell.' The baby died on April 1st and was buried in the churchyard.
- 4.1.4 On the west wall at the back of the church there is a stone dating to 1734 which provides an account of *Richard Evens' Care for the poor householders of Penn*. He left instructions for the occupant of his farm in Pennwood Lane to pay £2 each year to provide 2d loaves. He also left *Poors' Land* and *Dead Land's Gravepiece* which together yielded £6. Mrs Ellen Pershouse was partly responsible for the provision of a new chancel in 1799.

4.2 Conclusions

- 4.2.1 I would argue that contrary to initial expectations and within the constraints of the methodology it has been possible to recover a considerable amount of useful and interesting information relating to the 18th- and 19th-century population of the town. It has been possible to make detailed comparisons with a number of similar, and contrasting post-medieval assemblages. Furthermore I would suggest that it is an approach that ought to be considered in similar situations where detailed excavation and recording proves impossible/unjustifiable for a number of reasons.
- 4.2.2 The wealth of data that has been recovered makes it clear that the project was worthwhile, for all interested parties and there were many who had vested interests. I was particularly thrilled by the enthusiasm of many of the parishioners who were keen to find out more about the archaeological aspect of the work at every stage.
- 4.2.3 The church has been transforming both inside and out for at least 700 years primarily to meet the changing needs of the parishioners. The new extension should be seen as a continuation of this process.

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APPENDIX 1 THE REVISED WRITTEN SCHEME OF INVESTIGATION

1.1 Summary

- 1.1.1 The Parochial Church Council of St Bartholomew's Church propose to provide an extension on the north side of the existing church which will comprise parish rooms, a kitchen and toilet facilities. This will involve the excavation and clearance of approximately 400 m². The site under development is of intrinsic archaeological significance and may have been the site of a church dedicated to St Bartholomew since *c.* 1200 AD. The development has been the subject of an archaeological evaluation which suggests that up to 250 burials and a minimum of 23 gravestones and a 500 m³ graveyard spoil will have to be removed to clear the site of buried remains before reaching natural ground level. All elements of the archaeological resource, which are to be disturbed, will be preserved by record, and this will include alterations to structures and boundary walls. It is intended that a considerable level of information will be retrieved which will feed into the continuing study of the history of Penn and ultimately into wider national research agendas. This document outlines the proposal for the necessary archaeological works in response to the Revised Brief for Archaeological Works produced by Jez Reeve (October 1998).
- 1.1.2 The proposed archaeological investigation outlined in this document should be read in conjunction with the Method Statement produced by Necropolis

1.2 Location and Topography

- 1.2.1 St Bartholomew's Church is located in Penn on the outskirts of Wolverhampton, West Midlands at NGR SO 8945 9529. The church is built on the lower southern summit of a hill and the development area slopes down at an incline of *c.* 30 degrees to the south.

1.3 Historical Background

- 1.3.1 Penn was established as a small community by the time of the Domesday record, but there is no mention of a church from this period. The remains of a Saxon preaching cross were recovered on the south side of the church in the late 19th century and this has been speculatively associated with the Countess Godiva of Mercia who held the estate here prior to the Norman Conquest. Whether the cross acted as the main focal point of religious gatherings or existed alongside a church on the site is unknown. It has been conjectured that the first, possibly wooden, church on the site was established *c.* 1200 AD by Sir Hugh de Bushbury. Although further developments and extensions of the church building through the ensuing centuries increased the size of this first church threefold it is thought to have developed southwards of its original foundation. A blocked northern window may be of Norman date. Two bays of the north arcade are 13th century (octagonal piers) and the bays further west are perpendicular. The tower is 15th century in date and was encased in brick in 1765 (Pevsner 1974, 323). In 1799 the original chancel was pulled down and a new one built, leaving only two Early English bays of the nave arcade.
- 1.3.2 The area to the north of the church, which includes the site of the proposed development, is known to have been used as a cemetery throughout the 19th and 20th centuries and may also have been part of the medieval cemetery. The gravestones now standing in this area mainly date from the 19th century, although there is at least one 18th-century example.

- 1.3.3 A record of the churchyard memorials was begun in 1983 by members of the parish and this comprised transcripts of the wording on the headstones and various quantitative details and observations on the stone itself although this does not include a photographic record.
- 1.3.4 Using the biographical information recorded on the stones the researchers have investigated the family groups of each of those mentioned. The burial registers for the 18th and 19th centuries for St Bartholomew's have been referenced along with those for St Benedict Bishop's, Wimbourne and St Peter's, Wolverhampton. The Register at St Catherine's House, the Institute of Genealogy, Lichfield Wills, census material 1841-91, trade directories and other archive sources have all been consulted in attempts to establish links with living relatives. Although not all individuals mentioned on the stones have been identified in the documentary sources, this body of work provides an ample starting point for the demographic analysis, which the archaeological work will initiate.

1.4 Development Proposals

- 1.4.1 The proposal to provide St Bartholomew's with parish rooms and toilet facilities on the north side of the present building will necessitate the excavation and clearance of c. 750 m². Enabling works that will also have archaeological implications are the eventual provision of a graded path to the new building, and the erection of the permanent works. In addition a small section of the churchyard wall will have to be removed to provide access to the site. This will necessitate an archaeological watching brief alongside the Main Contractor.
- 1.4.2 The development proposal also includes the provision for reinterment of burials in an archaeologically clear site, along the line of the northern footpath and reinstatement of grave memorials (by Necropolis) in consultation with the Archaeological Contractor. This process will necessitate the breaching of the curtilage wall. At this stage further provision will be made for an archaeological watching brief.

1.5 Archaeological Background

- 1.5.1 The Oxford Archaeological Unit undertook a small evaluation within the footprint of the proposed new building in August and September 1994. This comprised four 2 m² trenches. All were excavated and recorded to the level of natural stratigraphy. This was observed at 172.48 m OD on the north side and between 171.94 -173.17 m OD on the south side. Between 1-2 m of burial deposits were excavated in each trench. No evidence of earlier church foundations was recorded although the remains of a heavily truncated pit containing bell-founding material were identified. In addition 14 medieval pottery sherds were recovered from a number of post-medieval grave fills. More than 20 burials dating to the 19th century were located in the four trenches, along with several earlier, undated burials. Three of the burials were associated with legible iron coffin plaques. Copper alloy fittings were also present. Brick-built vaults, also dating from the 19th century were located in the south-eastern and north-western areas of the development.

1.6 Legal Considerations

- 1.6.1 It is the responsibility of the Parochial Church Council (hereafter the PCC) to ensure that appropriate Faculty permissions have been granted for the works before the archaeological watching brief and exhumation commences (Care of Churches and Ecclesiastical Jurisdiction Measure 1991, Faculty Jurisdiction Measure 1964).

- 1.6.2 In so far as none of the buried human remains will be removed from consecrated ground there will be no necessity to comply to the strictures of the Burial Act 1857 (section 25).
- 1.6.3 It is the responsibility of Arrol and Snell (Architects) to ensure the Listed Buildings Consent has been approved for the breach of the churchyard wall before the archaeological watching brief commences (Town and Country Planning Act 1990, Planning (Listed buildings and conservation areas) Act 1980).
- 1.6.4 It is the responsibility of the PCC to appoint a Planning Supervisor for the whole job, while the Archaeological Contractor has responsibility to demonstrate that that they have planned a safe working practice by providing the Planning Supervisor with a Risk Assessment of all work to be done by the archaeological team, a current Health and Safety policy and the detailed specification for the archaeological watching brief ((Construction (Design and Management) Regulation 1994 CDM).
- 1.6.5 It is the responsibility of Necropolis to ensure that the local Environmental Officer is informed of the proposed exhumation and to provide a Risk Assessment. It is the responsibility of the Archaeological Contractor to ensure that all employees of OAU and authorised visitors are fully instructed in appropriate risk avoidance and approved on-site procedures (Public Health (Control of Diseases) Act 1984).
- 1.6.6 The Health and Safety at Work Act 1974 under which the Personal Protective Equipment at Work Regulations are made will be complied with at all times by the Archaeological Contractor. Evidence of appropriate procedures will be detailed in the Risk Assessment.

1.7 Ethical and Religious Considerations

- 1.7.1 All staff involved in the exhumation and recording of the remains will be expected to behave with care and attention, showing respect for the dead at all times. The burials represent the remains of past parishioners of the church of St Bartholomew and thus particular consideration will be afforded to the sensitivities of the current parishioners in all exhumation and archaeological works.
- 1.7.2 All movement of, or attention to, human remains will only be done with the agreement of the Rev. Williams or his agents.

1.8 Standards

- 1.8.1 OAU shall conform to the standards of professional conduct outlined in the Institute of Field Archaeologists' Code of Conduct, the IFA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology (1990, revised 1997), the IFA Standards and Guidance for Excavations and Watching Briefs (1994) and the British Archaeologists and Developers' Liaison Group Code of Practice.
- 1.8.2 OAU is a member of the Institute of Environmental Assessment and the Council for British Archaeology. Project Directors normally will be recognised in an appropriate Area of Competence by the IFA.
- 1.8.3 As the main methodology for the archaeological recording on this site is a watching brief it is important to emphasise that the Institute's Standard stressed that an 'Archaeological Watching Brief' will not be intended to reduce the requirement for excavation or preservation of known or probable deposits, and it will be intended only to guide, not to replace, any requirement for contingent excavation or preservation of possible deposits. Full archaeological recording and excavation,

according to the Institute's Standard for archaeological excavation, will be followed for all structures and non-burial deposits.

1.9 Scope of Archaeological Works

1.9.1 The aim of this archaeological project design is to ensure that as much detail as possible can be recorded by the archaeological project team working in partnership with the exhumation contractor. The archaeological team will be in constant attendance on the exhumation contractor to record the burials to the level outlined below as they are exhumed. When the need arises the archaeological team will be attended by the exhumation contractor, although it is planned that it will be possible to accommodate both teams on the site at all times.

1.10 Watching Brief Recording

1.10.1 The objectives of the archaeological watching brief will be to capture basic demographic information for that element of the burial population to be disturbed. Location of burials will be mapped and through recording on pro-forma sheets the following should be recorded:

- Minimum number of individuals
- Broad age and sex categories (infant, subadult, young adult, middle adult, ageing adult; male and female)
- Gross pathology
- Transcription of all coffin plates and record of coffin furniture

1.10.2 Necropolis will be responsible for the laying out of a 2 m grid across the development area. Excavation with a small mechanical digger will then commence at the eastern end of the site. Spoil will be removed down to the first visible layer of burials by Necropolis at which stage the excavation will be made safe and available to the Archaeologists with the trenching system continuing along the grave line to expose further coffins/skeletal remains for archaeological recording. During this repeated process, once coffins/skeletal remains have been fully recorded, they will be exhumed and contained in opaque burial sacks with attached identification/location tags, and removed from the immediate vicinity for storage prior to their reburial. This process will continue down to natural. Where approved clearance of a suitable length of trenching has been achieved then backfill with cleared spoil will proceed by excavator bucket in specified layers and compacted by the hydraulic machine bucket to maintain a stable site. It is the policy of Necropolis to pursue complete burials rather than to truncate them, and to backfill excavated areas with clean spoil as work proceeds in order to maintain the stability of the site. The remains will either be recorded in situ or removed as appropriate. Necropolis will be responsible for the individual bagging of skeletons and subsequent storage prior to reburial. Bagging, interim storage, transport and re-interment will be under the auspices of the exhumation contractor after archaeological recording has taken place.

1.10.3 Although Necropolis produce detailed records and drawings, there are likely to be difference in purpose and presentation which will make both sets of records necessary.

1.10.4 All recording will be undertaken in accordance with the requirements of the OAU Field Manual (Wilkinson 1992). The manner of excavation and the level of recording will comply with the OAU Field Manual supported by the Procedure for the excavation and recording of burials except where covered in this specification.

1.10.5 A single context recording system will be employed. However, recent experience on other similar sites has shown that this can be time consuming and not necessarily informative (cf Bashford and Pollard 1998, 155), eg grave cuts vary only in their dimensions and fills are generally of a fairly uniform character. It is considered more useful to record grave contents on a single burial sheet, with additional sheets for recording osteology/palaeopathology and noteworthy coffins, rather than separate context sheets for grave cut, fill, coffin and skeleton. Thus each grave cut, fill, coffin and skeleton will be assigned a group number. Preservation and completeness of skeleton will be recorded *in situ* prior to osteological analysis. It is proposed that bagging of skeletons will only be undertaken after osteological analysis is complete. Specialised recording forms will be available for the recording of both coffins and skeletons. Charnel and disarticulated remains will not be recorded although they will be carefully cleared from all spoil prior to its disposal by Necropolis and stored for reinterment.

1.10.6 Clearly it will be essential to link human remains excavated from different phases of work. This will be achieved by recording levels and grid references for each individual burial. It should be possible to tie in the burials from the evaluation with this proposed phase of work.

Plans

1.10.7 These will be drawn at a scale of 1:50 or 1:20 as appropriate. Skeletons and coffins will not be planned as provision will be made for their photographic recording. The site grid will be accurately tied into the National Grid and located on the 1:2500 or 1:1250 map of the area. A register of plans will be kept.

Sections

1.10.8 Long sections of trenches showing layers will be drawn at 1:50. A register of sections will be kept. All sections will be tied in to Ordnance Datum.

Photography

1.10.9 A black and white and colour (35 mm transparency) photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work. Photographs will be recorded on OAU Photographic Record Sheets.

Coffins and Coffin Fittings

1.10.10 Wooden and lead coffins and any associated fittings, including nails, will be recorded on the coffin recording sheet. Particular attention will be paid to biographical information on coffin plates.

1.10.11 All surviving coffin fittings will be recorded in detail by reference to the published corpus of material from Christ Church, Spitalfields (Reeve and Adams 1993) as well as the unpublished catalogue of material from St Nicholas, Sevenoaks (Boyle 1995). Where individual types cannot be paralleled they will be sketched or photographed as appropriate.

Sex Estimation

1.10.12 Standard osteological techniques will be used in the multi-factorial assessment of biological sex (Steele and Bramblett 1988; Buikstra and Ubelaker 1994). Individuals will be assigned to probable male, probable female or unknown

categories where incompleteness, poor preservation, or ambiguous results prohibit definitive assignment to either sex.

Age Estimation

- 1.10.13 Standard osteological techniques will be used in the establishment of age at death (Miles 1962, 1963; Lovejoy *et al* 1985; Buikstra and Ubelaker 1994).

Brick-built Vaults

- 1.10.14 At present it is clear that there are at least three brick-built burial vaults within the development area and other examples may well be identified during excavation. A sketch plan of each vault will be produced. Location, dimensions and method of construction will be noted. It is proposed that the vaults be dismantled by Necropolis and that the contents will be recorded archaeologically. Where lead coffins survive intact it is proposed that these will be lifted by Necropolis and reburied. Only external features of sealed lead coffins will be recorded archaeologically. Where lead coffins are damaged or broken they will be recorded by the senior osteoarchaeologist and subsequently removed by Necropolis.

Other Structures

- 1.10.15 As requested in the Revised Brief (Reeve October 1998), all structures and non-burial deposits, which cannot be recorded with the watching brief methodology, will be fully recorded and excavated by the archaeological team, and such work take precedence over the exhumation contractors' work, if necessary. The objectives of this work will be to examine any structures which have become part of the churchyard complex, and any remains which can be interpreted as part of the church structure or previous land uses.
- 1.10.16 If detailed archaeological excavation and recording is required the archaeological team will make every effort to complete their tasks with minimum disruption to Necropolis, if possible.

Recent Burials

- 1.10.17** A number of recent burials are known to lie within the development area. These will be removed by Necropolis in sequence along with the other burials. Archaeological recording of these is not desirable although a senior osteoarchaeologist will be present.

Storage of Remains and Reinterment

- 1.10.18 The Archdeacon is reluctant to allow the remains to be removed from site and it has therefore been agreed that the Choir Vestry can be used for the storage of remains prior to reburial. Any well preserved burials will receive immediate re-interment.
- 1.10.19 Although no material is to be removed from site, a selection of artefacts may be displayed in the new building. Everything else is to be reinterred.
- 1.10.20 The site chosen for reburials used to be the church boundary and test digs have been carried out to full coffin size without disturbance of any remains
- 1.10.21 A mass grave or graves will be dug and the remains interred. Locations will be recorded so that individual remains may be identified in future if necessary. There is a slight possibility that further burials will be revealed during reinterment and therefore the process will be archaeologically monitored. The timing of reburial will depend on the number of burials recovered in relation to the space available for storage and a phased sequence of reburials may be necessary.

1.11 Timetable and Resources

- 1.11.1 An estimate of 5-8 weeks has been made by Necropolis. This includes memorial, spoil removal and reinterment of exhumed burials working alongside archaeologists undertaking a watching brief. The archaeological team should be in attendance throughout this period. Necropolis work on Saturdays. While it may be desirable to have an archaeological presence on these days, Necropolis have agreed if required, to undertake work which has no archaeological implications.
- 1.11.2 A team comprising two archaeologists (at least one an experienced osteoarchaeologist) will undertake the necessary on-site work. In addition, it is envisaged that a senior osteoarchaeologist will carry out necessary monitoring visits and be responsible for the production of the final report.
- 1.11.3 No exhumations or other below ground works should take place unless there are archaeologists present.
- 1.11.4 There will be a separate enabling contract prior to the main contract being let, with the OAU being employed directly by the PCC as a consultant.

1.12 Comparative Reference Material

- 1.12.1 There are a number of published excavation reports which will be of particular relevance to this site. These include Christ Church, Spitalfields (Reeve and Adams 1993; Molleson and Cox 1993), St Nicholas, Sevenoaks (Boyle 1995; Boyle 1998, Boyle 1999), London Road, Kingston-upon-Thames (Bashford and Pollard 1998; Start and Kirk 1998), and St Bride's Church, Fleet Street, London (Scheuer 1998). A number of other relevant articles have also been published in a recent monograph dedicated to the study of post-medieval burial (Cox 1998).

1.13 Monitoring

- 1.13.1 Given the untried nature of the proposed methodology there will be a review at the end of the second week in order to refine any on-site problems and set priorities if necessary. This monitoring point will provide the church's Archaeological Consultant and the Metropolitan Borough's Archaeological Adviser the opportunity to ensure that this project design is being implemented and therefore the archaeological condition of the planning permission is being met. Any significant variation to the proposed methodology will need to be approved at this point.

1.14 Archive and Publication

- 1.14.1 The site archive (paper and photographic record) will be prepared for long-term storage in accordance with standard guidelines (Walker 1990). As a condition of the Faculty no artefacts will be removed from the site but rather will be reinsured with the human remains. A small number may be retained for display within the new building. Agreement will be sought for the full indexed archive of the project to be deposited as a publicly accessible collection, having been first offered to the RCHME for security copying. The detailed report of the results will be part of this archive and two copies will be submitted to the local Sites and Monuments Record for inclusion in the County record.
- 1.14.2 An appropriately detailed synthesis of the work and results of the excavation and recording exercise will be prepared within six months of the completion of the site report. A summary will also be prepared for inclusion in the *Journal for Church Archaeology*, *Post-medieval Archaeology*, and, if appropriate, *Medieval Archaeology*.

1.15 General

- 1.15.1 The requirements of the Brief will be met in full where reasonably practicable. Any significant variations to the proposed methodology will be agreed with the local authority's archaeological representative, the Archaeological Consultant and the PCC in advance.
- 1.15.2 The scope of work detailed in the main part of the Written Scheme of Investigation is aimed at meeting the aims of the project in a cost-effective manner. The Oxford Archaeological Unit attempts to foresee possible site-specific problems and resource these. However, there may be unusual circumstances which have not been included in the costing and programme.
- Unavoidable delays due to extreme bad weather, vandalism, etc.
 - Complex structures or objects, including those in waterlogged conditions, requiring specialist removal.
 - Extensions to specified trenches or feature sample sizes requested by the archaeological curator.

1.16 Health and Safety and Insurance

- 1.16.1 All work will be carried out to the requirements of *Health and Safety at Work, etc. Act 1974*, *The Management of Health and Safety Regulations 1992*, the SCAUM (Standing Conference of Archaeological Unit Managers) H & S manual *Health and Safety in Field Archaeology 1991*, the OAU Health and Safety Policy, and any main contractors requirements.
- 1.16.2 A copy of the OAU's Health and Safety Policy is available on request. OAU will require copies of the H & S policies of all other contractors and operators present on site in compliance with *The Manual of H & S Regulations 1992*.

Infectious Diseases

- 1.16.3 Funerary archaeology presents a specific and complex range of hazards. The risk of anyone contracting smallpox is remote but the potential threat to the population at large is such that it must be taken seriously. All staff will wear protective clothing at all times. This will comprise disposable suits, dust masks, gloves and hard hats.
- 1.16.4 Where wooden coffins were used there may be an increased risk of infection due to occasional good preservation of bodies and other materials. The highest risk category is that of the sealed lead coffin. If any soft tissue remains the hazard presented will be treated as potentially severe and suitable protective systems will be used. It is not only the human remains themselves that present a risk but also the coffin linings and pads, and the result of the body's decomposition, a viscous black liquid. The greatest potential risk presented by this activity is that of contracting anthrax or smallpox. The risk for the archaeologist associated with working with the remains of a recorded anthrax death are thought to be small. A higher risk is gained from the well-preserved horse hair or woollen materials used in the coffin pads, pillows and packing.
- 1.16.5 Minimum precautions are to wear the correct level of protective equipment. In addition any staff who come into contact with well preserved remains (ie with soft tissue surviving) must have a primary inoculation scar. Washing facilities will be provided (by Necropolis) for all staff.
- 1.16.6 Protective clothing will remain within the area of the site for the duration of the work. At the completion of each day's work, and prior to any work breaks protective gloves and boots will be washed down using an approved disinfectant and

stored in the designated area. In the even of clothing being grossly soiled, and on completion of the work, overalls, gloves and disposable respirators will be sealed in opaque plastic bags and disposed of in accordance with statutory requirements.

Disposal of Materials

- 1.16.7 Coffin liquor, disposable paper suits and respiratory protection equipment are all classified as clinical waste and must be collected and incinerated by approved contractors. Lead can be stored and recycled. Rotting wood from coffins can be disposed of by agreement with the local waste regulation authority. The disposal of decontaminating fluids into sewers requires approval and possibly a license. All of the above will be the responsibility of Necropolis.

Disposal of Lead Coffins

- 1.16.8 Lead coffins can weigh up to one third of a ton. It is proposed that the removal of these is undertaken by Necropolis through the use of specialised lifting equipment.

Insurance

- 1.16.9 Apart from this specification which defines many of the site working methods and practices the indication Method Statement will be reused and reissued by the appointed Main Contractor and Archaeological Contractor in consultation with the PCC and Archaeological Consultant. This will form the basis of the working relationship between all parties involved.
- 1.16.10 The OAU holds Employers Liability Insurance, Public Liability Insurance and Professional Indemnity Insurance. Details will be supplied on request.
- 1.16.11 The OAU will not be liable to indemnify the client against any compensation or damages for or with respect to:
- The use or occupation of land (which has been provided by the Client) by the Project or for the purposes of completing the Project (including consequent loss of crops) or interference whether temporary or permanent with any right of way, light, air or water or other easement or quasi easement which are the unavoidable result of the Project in accordance with the Agreement;
 - Any other damage which is the unavoidable result of the Project in accordance with the Agreement;
 - Injuries or damage to persons or property resulting from any act or neglect or breach of statutory duty done or committed by the client or his agents, servants or their contractors (not being employed by the Oxford Archaeological Unit) or for or in respect of any claims demands proceedings damages costs charges and expenses in respect thereof or in relation thereto.

1.17 Copyright and Confidentiality

- 1.17.1 The Rev. Williams and PCC hold copyright of all drawings and other records produced as part of this work.
- 1.17.2 Oxford Archaeological Unit will retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to the client in all matters directly relating to the project as described in the Written Scheme of Investigation.
- 1.17.3 Oxford Archaeological Unit will assign copyright to the client upon written request but retains the right to be identified as the author of all project documentation and

reports as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV, s.79).

- 1.17.4 OAU will advise the client of any such materials supplied in the course of projects, which are not OAU's copyright.
- 1.17.5 OAU undertakes to respect all requirements for confidentiality about the client's proposals provided that these are clearly stated. It is expected that such conditions shall not unreasonably impede the satisfactory performance of the services required. OAU further undertake to keep confidential any conclusions about the likely implications of such proposals for the historic environment. It is expected that clients respect OAU's general ethical obligations not to suppress significant archaeological data for an unreasonable period.